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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/751,230

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Jinbo Xu

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07/25/2006

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EXAMINER

BORIN, MICHAEL L

ART UNIT

PAPER NUMBER

1631

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,230

Applicant(s)

XU ET AL.

Examiner

Michael Borin

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13 and 15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-11, 13, 15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Amendment filed 06/26/2006 is acknowledged. Claims 12,14 are canceled. Claims 1-11,13,15 are pending.

Applicant's request to keep withdrawn claim 14 without further action is not understood as the claim was canceled by applicant in the same response.

Claim Rejections - 35 USC § 112, first paragraph.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-11,13,15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The rejection is applied for the following reasons:

- A. Claims 1,15 introduce new matter as they recite "template comprising protein structures" (emphasis added). While specification teaches that a template

consists of a linear series of cores with the connecting loops between the adjacent cores

p. 5, lines 14,15, it does not teach a template comprised of protein structures as the latter term encompasses an assortment of non-liked structures pooled from a database.

B. Claims 1,15 introduce new matter as they recite that optimally aligned structure of template is identified as “the best fit”. Although specification discloses how to perform method steps (Fig. 6, for example), it does not disclose that performing these steps results in identifying a “best fit”.

C. Claims 1, 15: The claims as amended recite that “the structure of template that optimally aligns with the query sequence”. Specification teaches that “one template is aligned to one sequence” (p. 6, lines 9,10, not that particular structures of template are aligned to the sequence.

Claim Rejections - 35 USC § 112, second paragraph.

Previously applied rejections under 35 U.S.C. 112, second paragraph are withdrawn in view of amendments to the claims and/or applicant’s arguments.

3. Claims 1, 15 and claims dependent thereupon are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims as amended recite that "the structure of template that optimally aligns with the query sequence". It is not clear how alignment can be achieved to a particular structure, i. e. one of the structures comprising a template if the alignment of the query sequence is performed with the entire template (see "performing" step). Further, specification teaches that "one template is aligned to one sequence" (p. 6, lines 9,10, not that particular structures of template are aligned to the sequence.

Claim Rejections - 35 USC § 101

Rejection of claims 1-11,13,15 under 35 U.S.C. 101 is withdrawn in view of amendments to claims 1,15. However, the rejection will be re-applied upon removal of new matter – see paragraphs 2B, 2C above.

Claim Rejections - 35 USC § 102 and 103.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,15 are rejected under 35 U.S.C. 102(b) as anticipated by Meller et al (Meller et al. Proteins: Structure, Function, and Genetics, 2001, Volume 45, Issue 3 , Pages 241 – 261). The rejection is maintained for the reasons of record and further in view of the following.

Applicant argues (pages 8-9 of the response) that Meller reference does not describe use of linear programming to perform actual protein threading and that the reference does not suggest that linear programming will be useful in threading sequences to existing structures. This is surprising because the reference besides "designing optimal scoring function" - which applicant considers as the only teaching of the reference - does teach use of the programming to perform actual protein sequence-tostructure alignments (threading) - see, for example, Table IX (p.250) describing alignment of myoglobin sequence into leghemoglobin structure and section ""Tests of the Model", pages 251-255.

Further, applicant argues that unlike the reference, the instant invention finds the best way to thread a query sequence into existing structures using linear programming. Examiner maintains position that the Meller reference is directed to solving the same problem. It is also noted that applicant acknowledges that Meller scoring function can be used in the instant invention same well as any other energy scoring function (p. 8, last paragraph of response).

5. Claims 3-7,11,13 remain rejected under 35 U.S.C. 103(a) as obvious over Meller et al in view of Akutsu et al. in view of Akutsu et al. The rejection is maintained for the reasons of record. Applicant argues that rejection should be withdrawn in view of arguments addressing Meller reference. These arguments were not found persuasive for the reasons discussed above.

Conclusion.

6. No claims are allowed

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (571) 272-0713. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 Michael Borin, Ph.D.
Primary Examiner
Art Unit 1631